

# Basic principles

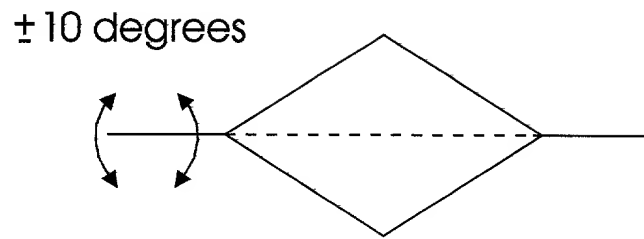


Fig. 1

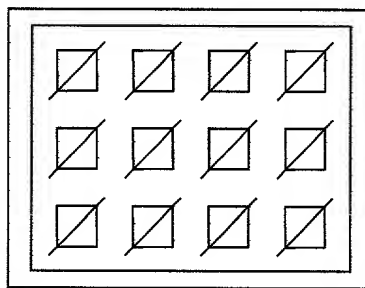


Fig. 2

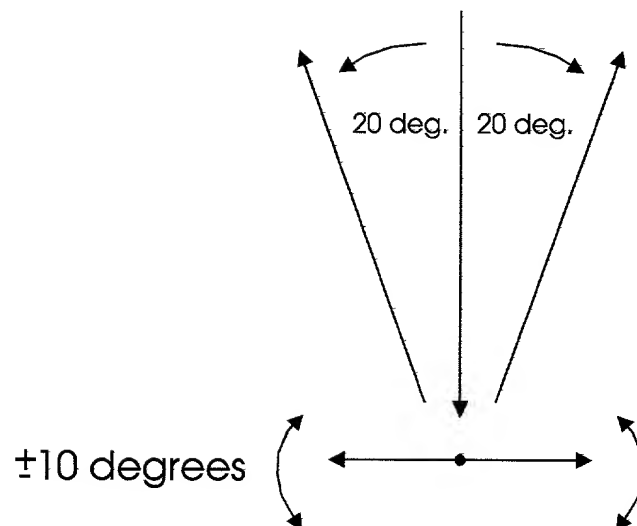


Fig. 3

# Basic principles

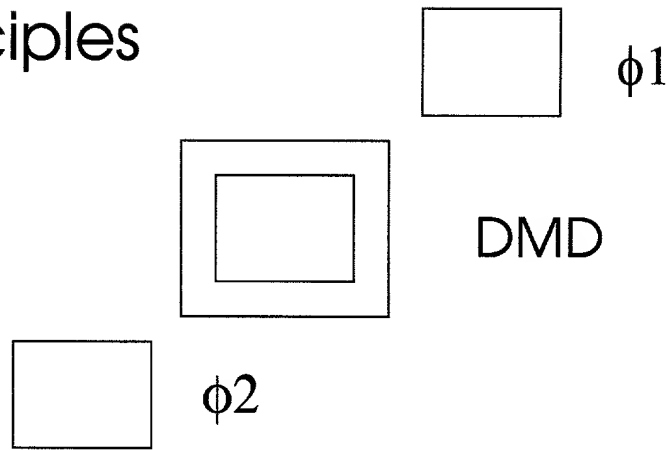


Fig. 4

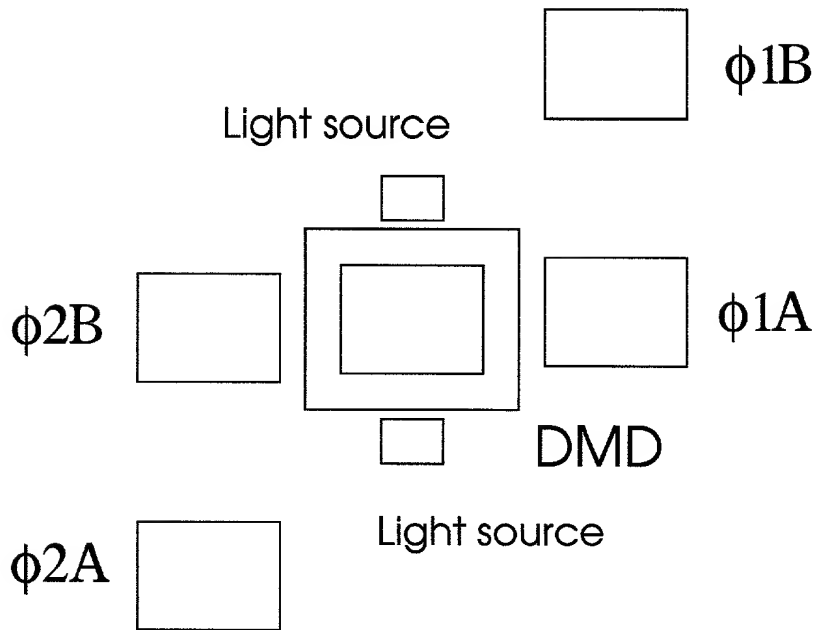


Fig. 5

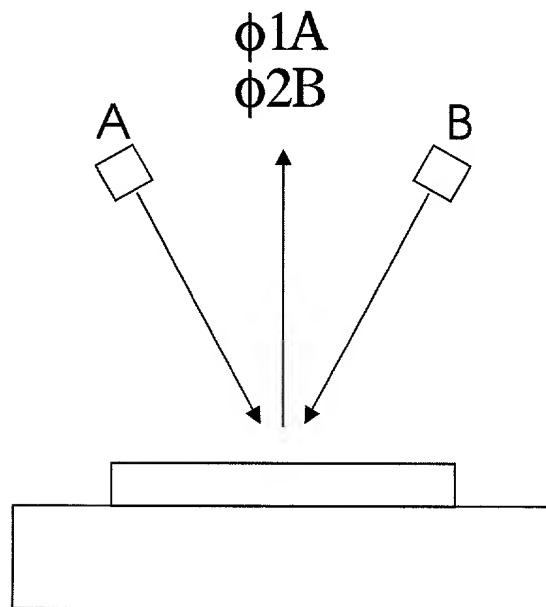


Fig. 6

| Physical Properties                       |             |
|---|-------------|
| Property                                  | Value       |
| Molecular Weight                          | 1000        |
| Boiling Point                             | 100°C       |
| Melting Point                             | 0°C         |
| Density                                   | 1.0 g/cm³   |
| Refractive Index                          | 1.33        |
| Viscosity                                 | 1.0 cP      |
| Surface Tension                           | 72 dyne/cm  |
| Heat of Vaporization                      | 40.7 kJ/mol |
| Heat of Fusion                            | 3.35 kJ/mol |
| Specific Heat                             | 4.18 J/g°C  |
| Thermal Conductivity                      | 0.6 W/mK    |
| Electrical Conductivity                   | 10⁻¹⁴ S/m   |
| Dielectric Constant                       | 80          |
| Acid Dissociation Constant (pKa)          | 7.2         |
| Base Dissociation Constant (pKb)          | 7.2         |
| Stability                                 | Stable      |
| Biodegradability                          | Yes         |
| Flammability                              | Flammable   |
| Toxicity                                  | Low         |
| Environmental Persistence                 | Low         |
| Biodegradation Half-life                  | 10 days     |
| Soil Half-life                            | 100 days    |
| Water Half-life                           | 10 days     |
| Atmospheric Half-life                     | 10 days     |
| Photolysis Half-life                      | 10 days     |
| Hydrolysis Half-life                      | 10 days     |
| Volatilization Half-life                  | 10 days     |
| Adsorption Coefficient (Kd)               | 10 L/kg     |
| Partition Coefficient (Kow)               | 10          |
| Octanol-Water Partition Coefficient (Kow) | 10          |
| Log P                                     | 1.0         |
| Log D                                     | 1.0         |
| Log S                                     | 1.0         |
| Log B                                     | 1.0         |
| Log C                                     | 1.0         |
| Log E                                     | 1.0         |
| Log F                                     | 1.0         |
| Log G                                     | 1.0         |
| Log H                                     | 1.0         |
| Log I                                     | 1.0         |
| Log J                                     | 1.0         |
| Log K                                     | 1.0         |
| Log L                                     | 1.0         |
| Log M                                     | 1.0         |
| Log N                                     | 1.0         |
| Log O                                     | 1.0         |
| Log P                                     | 1.0         |
| Log Q                                     | 1.0         |
| Log R                                     | 1.0         |
| Log S                                     | 1.0         |
| Log T                                     | 1.0         |
| Log U                                     | 1.0         |
| Log V                                     | 1.0         |
| Log W                                     | 1.0         |
| Log X                                     | 1.0         |
| Log Y                                     | 1.0         |
| Log Z                                     | 1.0         |
| Log AA                                    | 1.0         |
| Log AB                                    | 1.0         |
| Log AC                                    | 1.0         |
| Log AD                                    | 1.0         |
| Log AE                                    | 1.0         |
| Log AF                                    | 1.0         |
| Log AG                                    | 1.0         |
| Log AH                                    | 1.0         |
| Log AI                                    | 1.0         |
| Log AJ                                    | 1.0         |
| Log AK                                    | 1.0         |
| Log AL                                    | 1.0         |
| Log AM                                    | 1.0         |
| Log AN                                    | 1.0         |
| Log AO                                    | 1.0         |
| Log AP                                    | 1.0         |
| Log AQ                                    | 1.0         |
| Log AR                                    | 1.0         |
| Log AS                                    | 1.0         |
| Log AT                                    | 1.0         |
| Log AU                                    | 1.0         |
| Log AV                                    | 1.0         |
| Log AW                                    | 1.0         |
| Log AX                                    | 1.0         |
| Log AY                                    | 1.0         |
| Log AZ                                    | 1.0         |
| Log BA                                    | 1.0         |
| Log BB                                    | 1.0         |
| Log BC                                    | 1.0         |
| Log BD                                    | 1.0         |
| Log BE                                    | 1.0         |
| Log BF                                    | 1.0         |
| Log BG                                    | 1.0         |
| Log BH                                    | 1.0         |
| Log BI                                    | 1.0         |
| Log BJ                                    | 1.0         |
| Log BK                                    | 1.0         |
| Log BL                                    | 1.0         |
| Log BM                                    | 1.0         |
| Log BN                                    | 1.0         |
| Log BO                                    | 1.0         |
| Log BP                                    | 1.0         |
| Log BQ                                    | 1.0         |
| Log BR                                    | 1.0         |
| Log BS                                    | 1.0         |
| Log BT                                    | 1.0         |
| Log BU                                    | 1.0         |
| Log BV                                    | 1.0         |
| Log BW                                    | 1.0         |
| Log BX                                    | 1.0         |
| Log BY                                    | 1.0         |
| Log BZ                                    | 1.0         |
| Log CA                                    | 1.0         |
| Log CB                                    | 1.0         |
| Log CC                                    | 1.0         |
| Log CD                                    | 1.0         |
| Log CE                                    | 1.0         |
| Log CF                                    | 1.0         |
| Log CG                                    | 1.0         |
| Log CH                                    | 1.0         |
| Log CI                                    | 1.0         |
| Log CJ                                    | 1.0         |
| Log CK                                    | 1.0         |
| Log CL                                    | 1.0         |
| Log CM                                    | 1.0         |
| Log CN                                    | 1.0         |
| Log CO                                    | 1.0         |
| Log CP                                    | 1.0         |
| Log CQ                                    | 1.0         |
| Log CR                                    | 1.0         |
| Log CS                                    | 1.0         |
| Log CT                                    | 1.0         |
| Log CU                                    | 1.0         |
| Log CV                                    | 1.0         |
| Log CW                                    | 1.0         |
| Log CX                                    | 1.0         |
| Log CY                                    | 1.0         |
| Log CZ                                    | 1.0         |
| Log DA                                    | 1.0         |
| Log DB                                    | 1.0         |
| Log DC                                    | 1.0         |
| Log DD                                    | 1.0         |
| Log DE                                    | 1.0         |
| Log DF                                    | 1.0         |
| Log DG                                    | 1.0         |
| Log DH                                    | 1.0         |
| Log DI                                    | 1.0         |
| Log DJ                                    | 1.0         |
| Log DK                                    | 1.0         |
| Log DL                                    | 1.0         |
| Log DM                                    | 1.0         |
| Log DN                                    | 1.0         |
| Log DO                                    | 1.0         |
| Log DP                                    | 1.0         |
| Log DQ                                    | 1.0         |
| Log DR                                    | 1.0         |
| Log DS                                    | 1.0         |
| Log DT                                    | 1.0         |
| Log DU                                    | 1.0         |
| Log DV                                    | 1.0         |
| Log DW                                    | 1.0         |
| Log DX                                    | 1.0         |
| Log DY                                    | 1.0         |
| Log DZ                                    | 1.0         |
| Log EA                                    | 1.0         |
| Log EB                                    | 1.0         |
| Log EC                                    | 1.0         |
| Log ED                                    | 1           |



# Mirror HMD - Two Stage

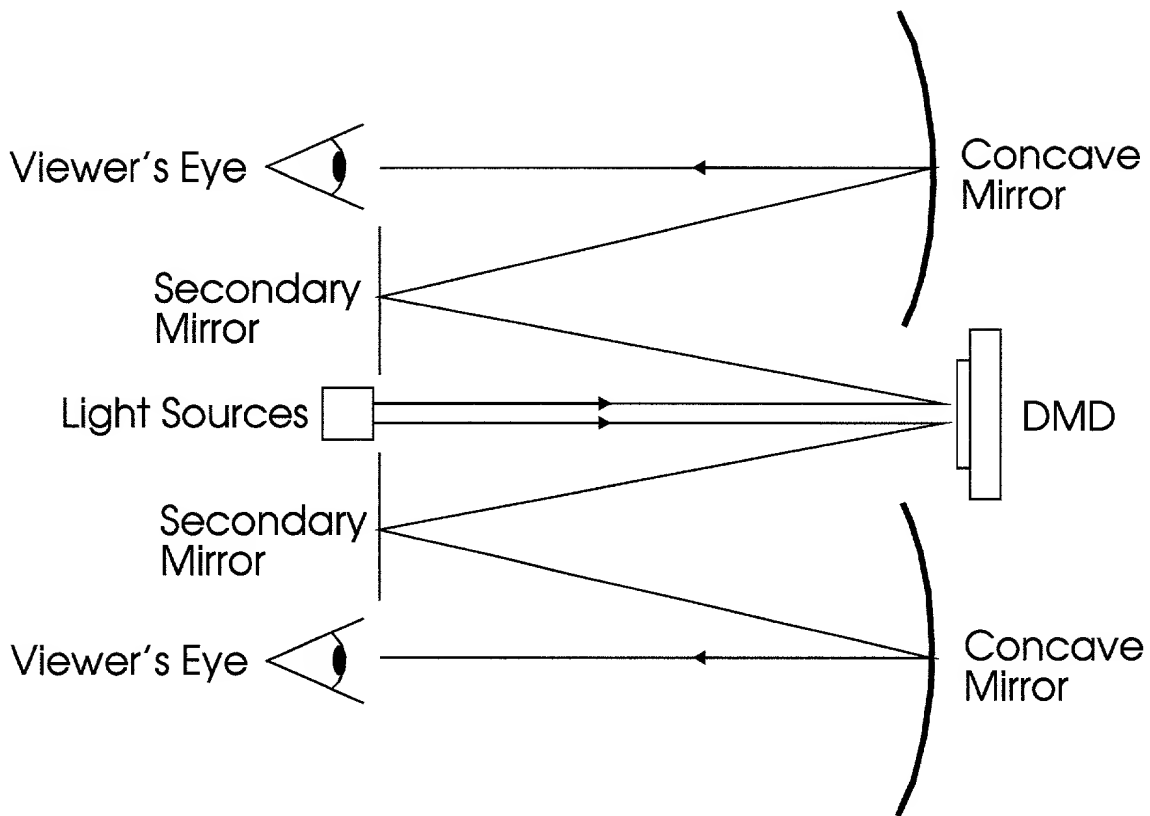


Fig. 9

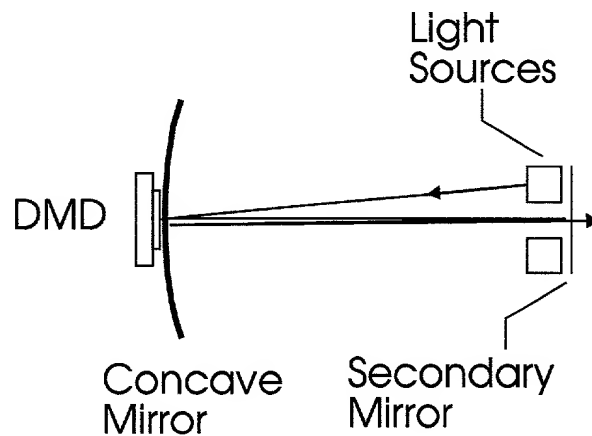


Fig. 10

# Enhancements

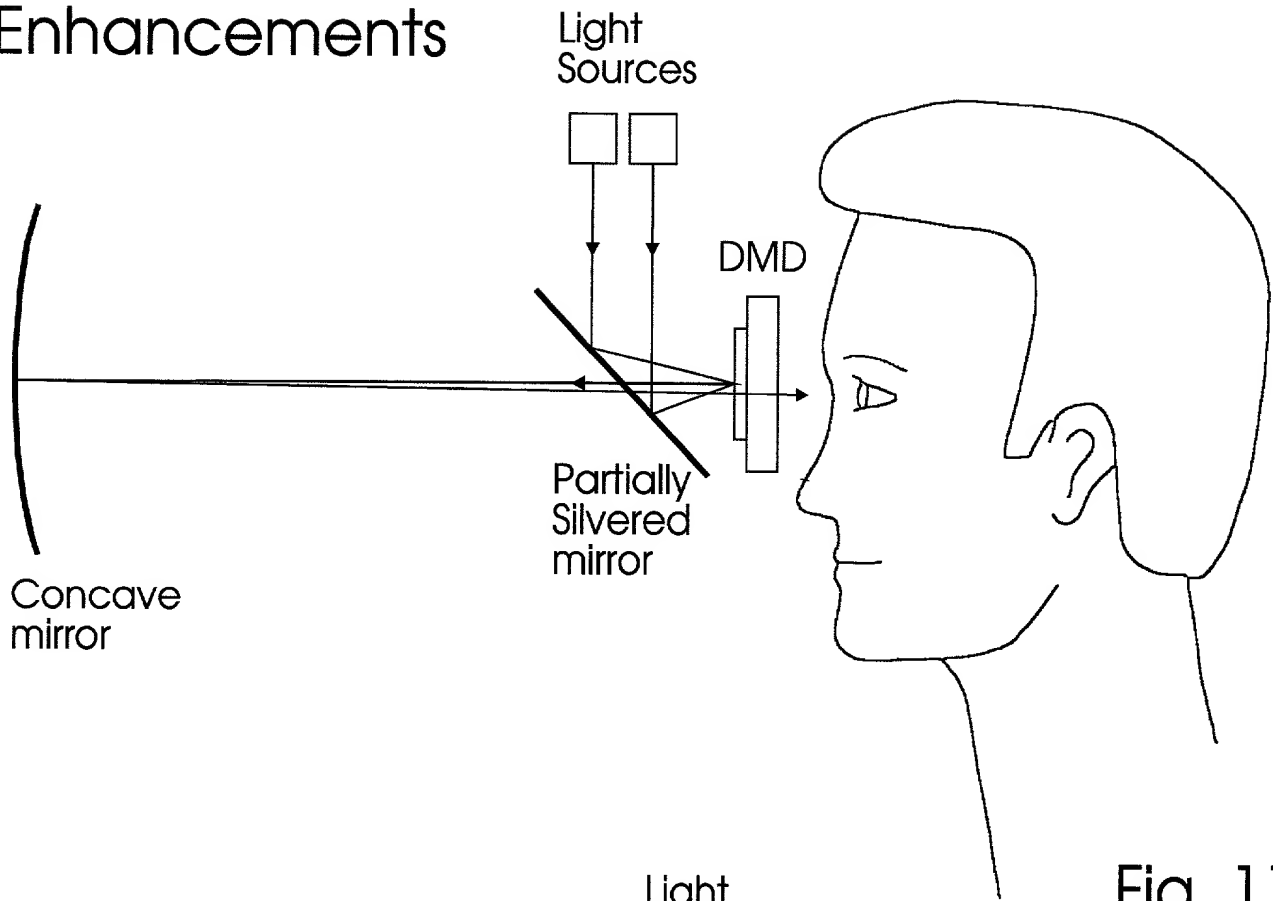


Fig. 11

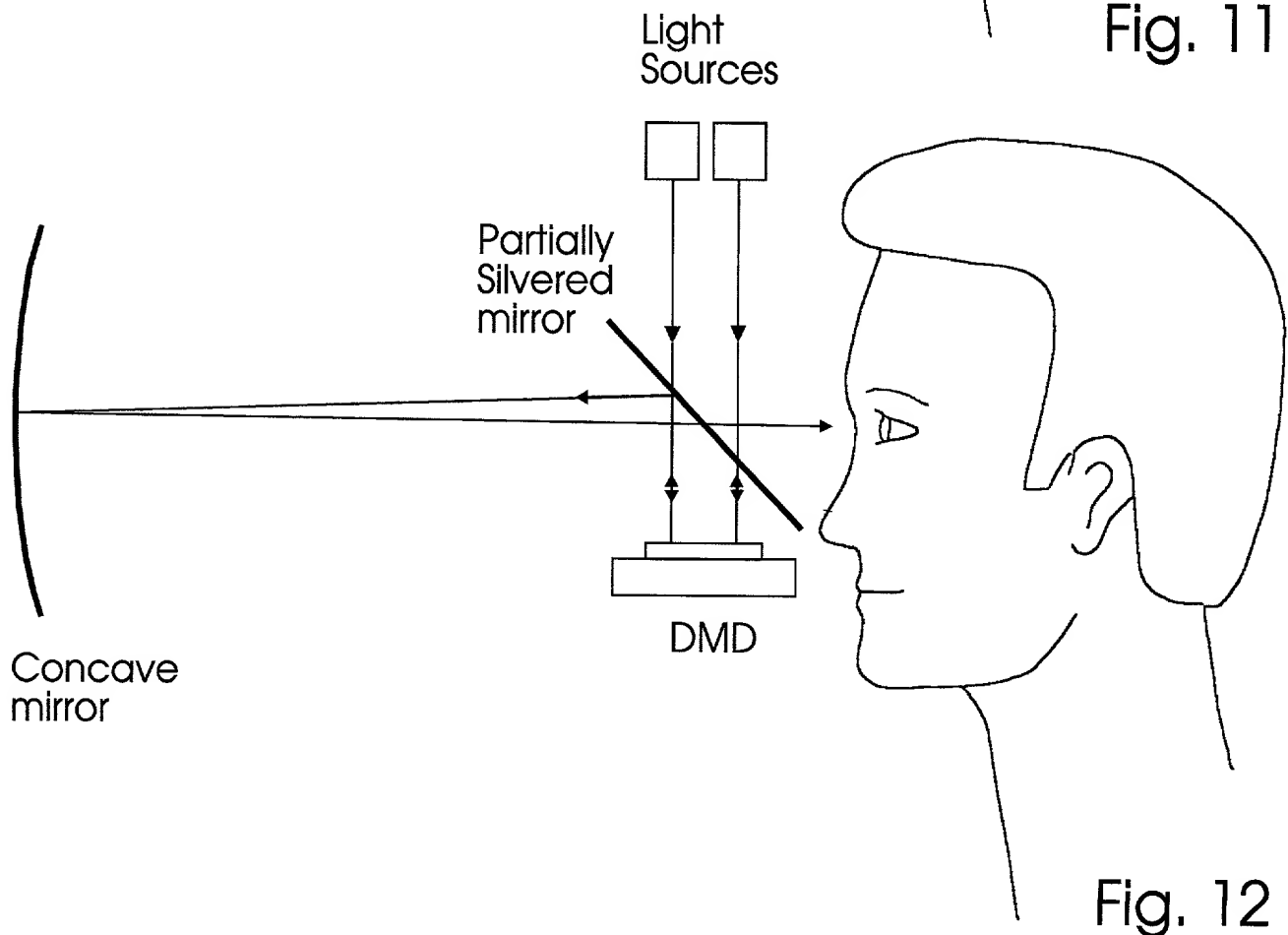


Fig. 12

# Enhancements

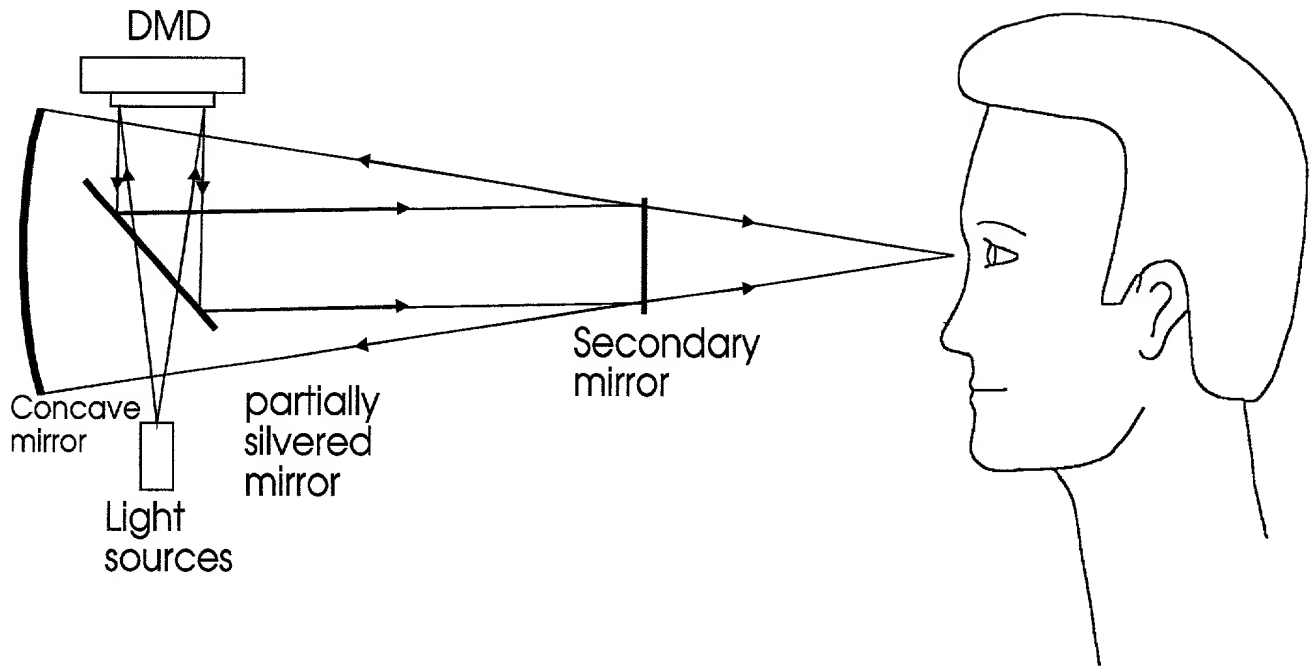


Fig. 13

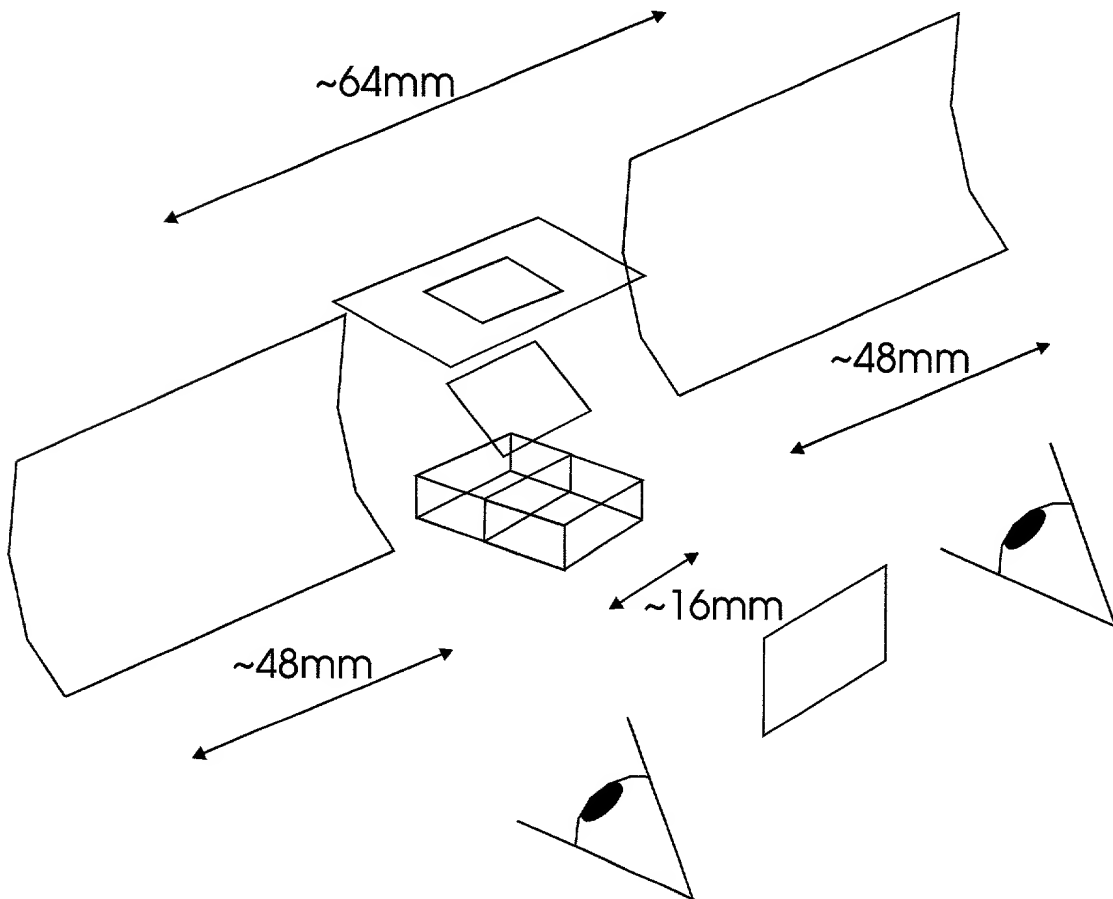
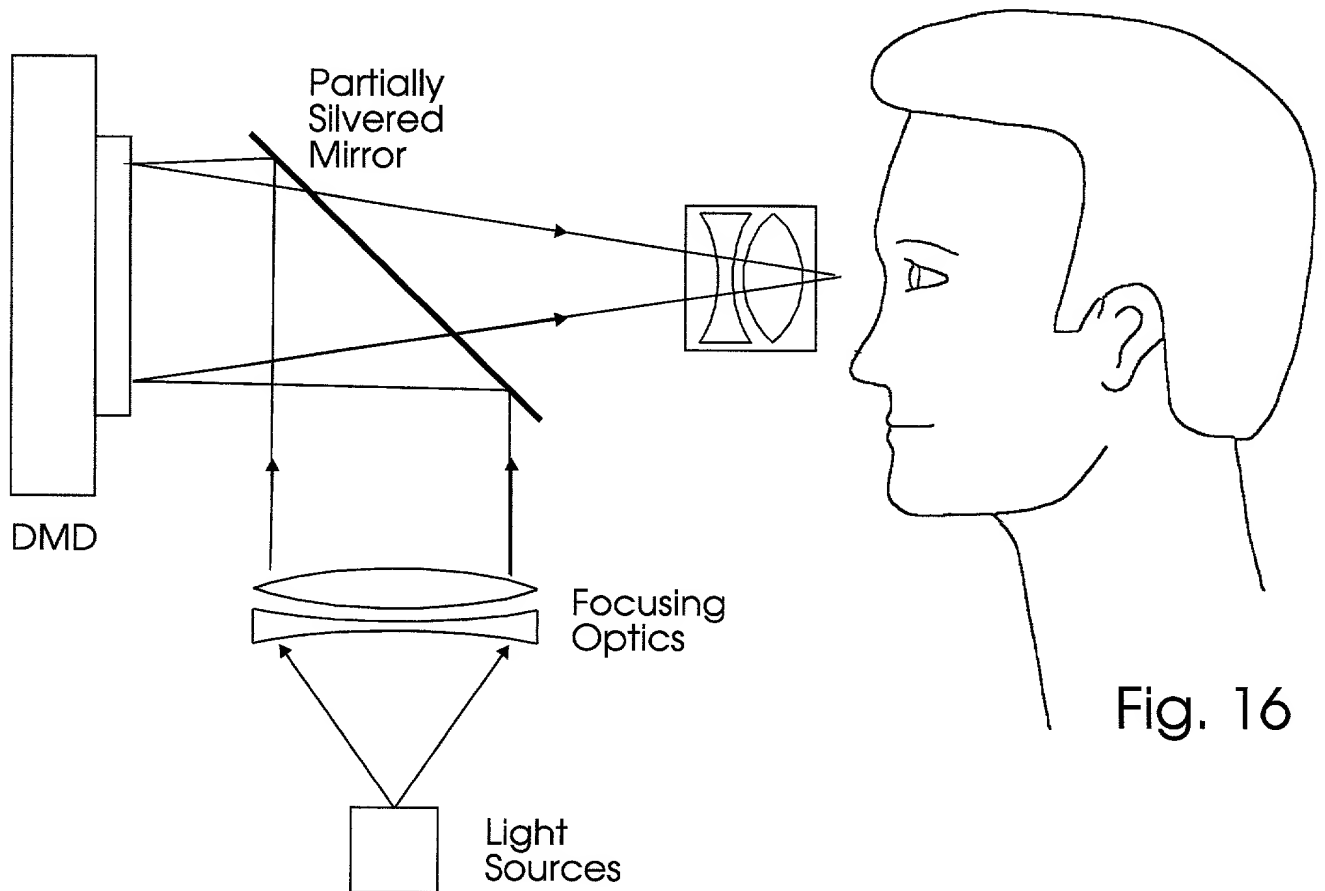
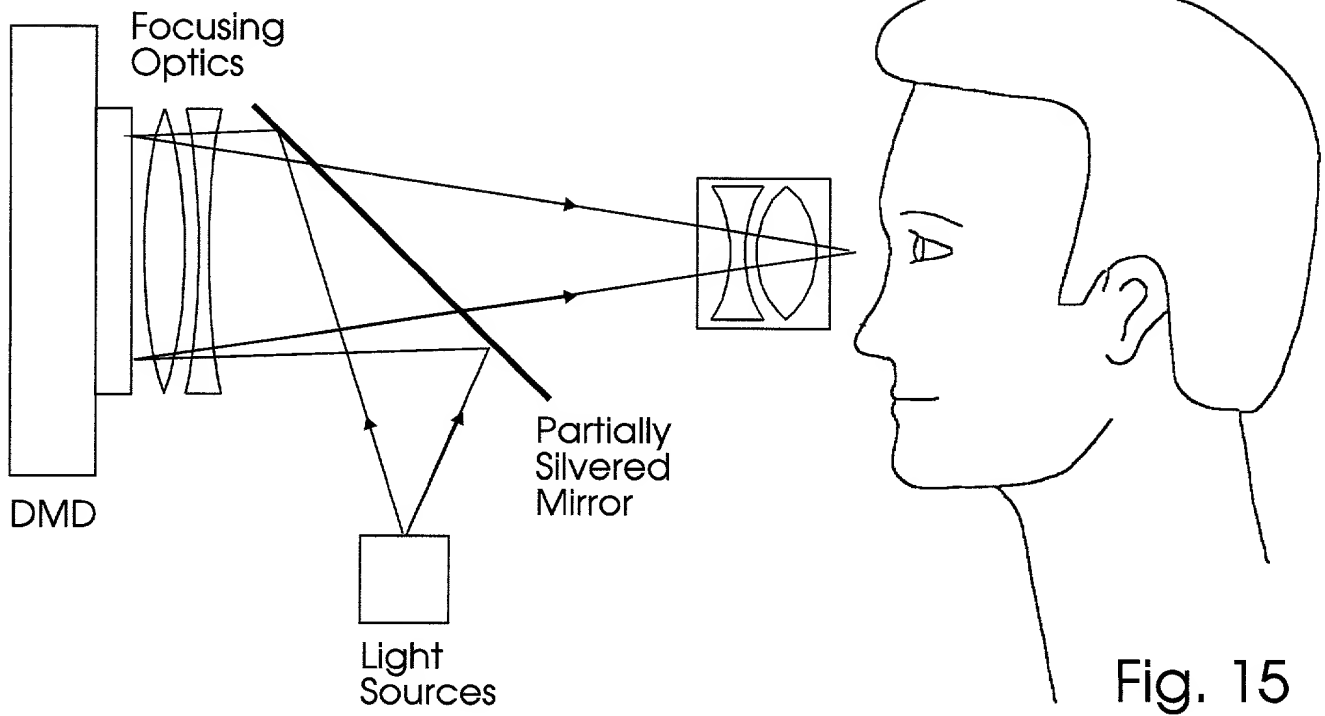


Fig. 14

# Dual DMD lens system



## 2 stage dual mirror hybrid HMD

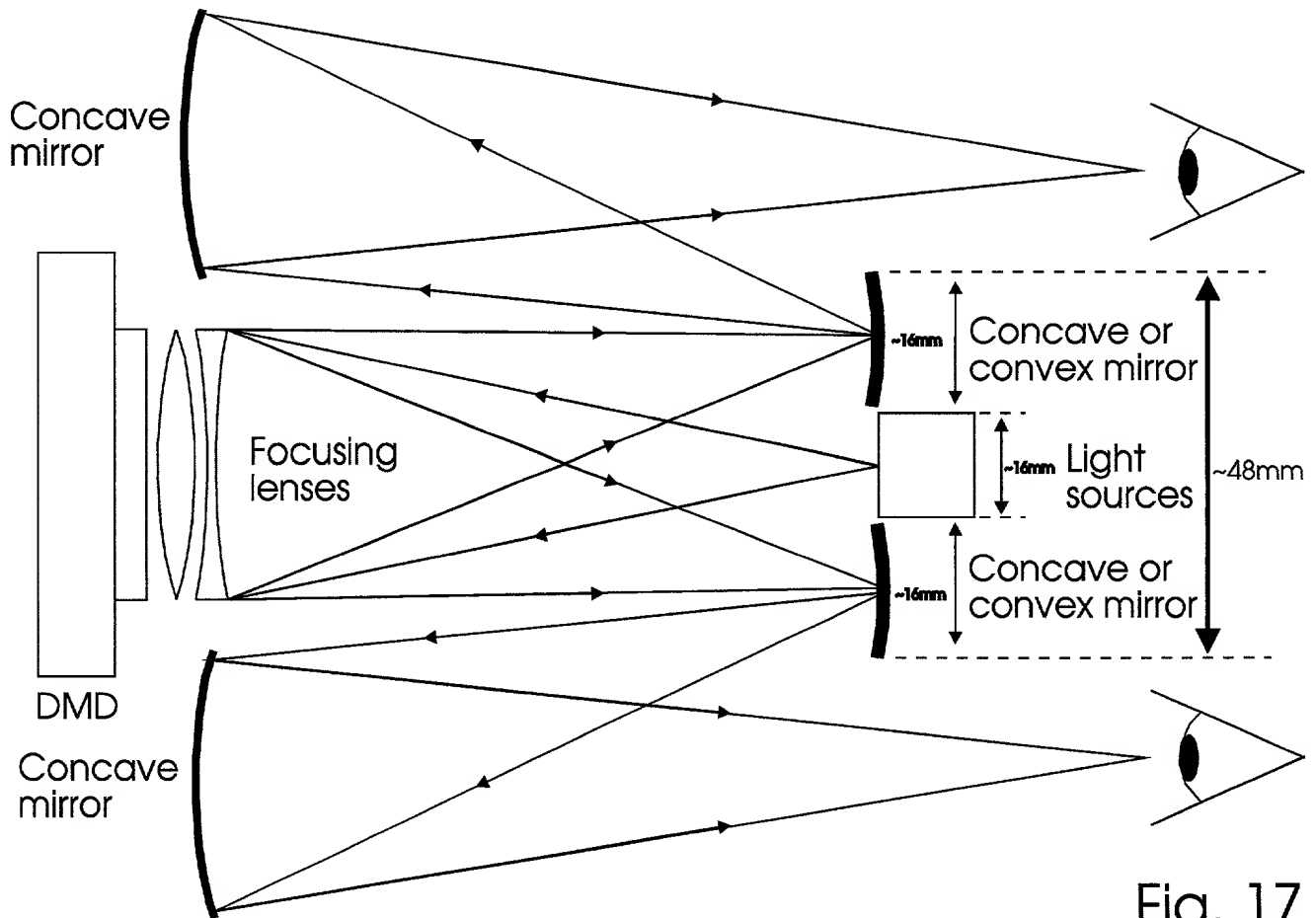


Fig. 17

## Single DMD lens HMD

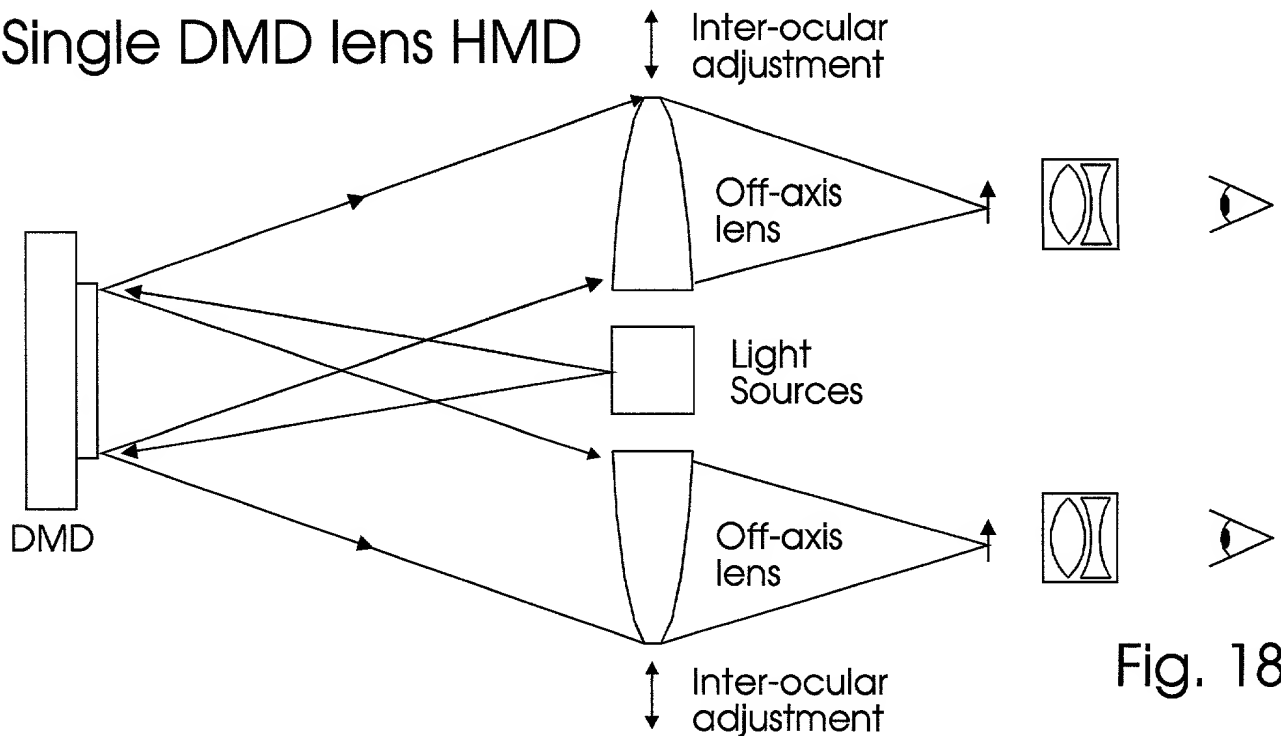


Fig. 18



# Prismatic lens design

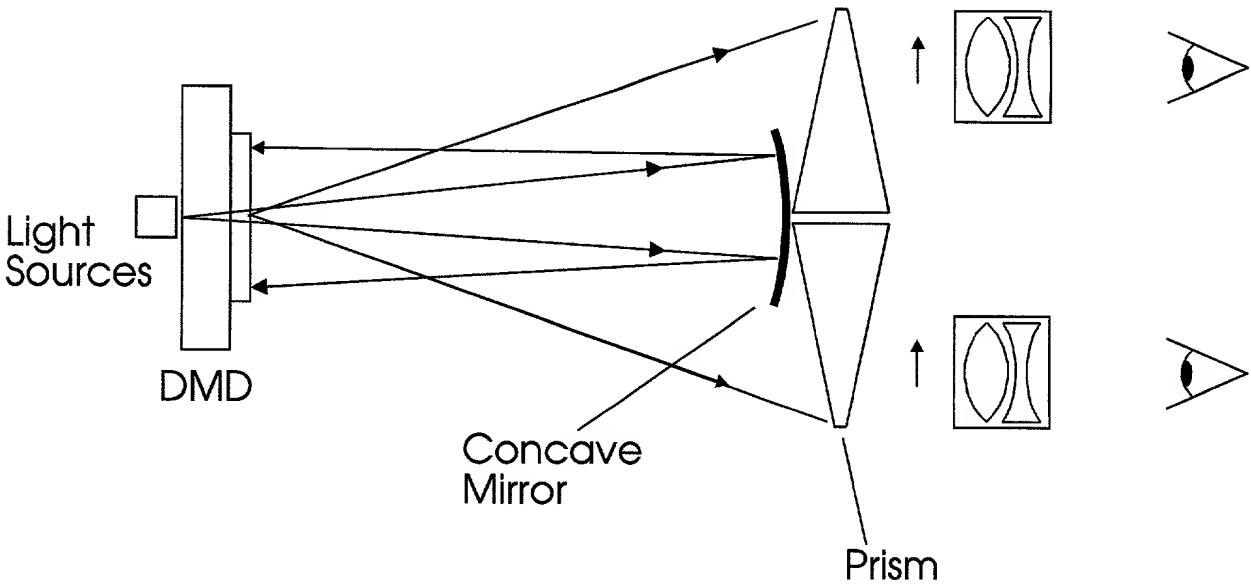


Fig. 19

# Binocular lens design

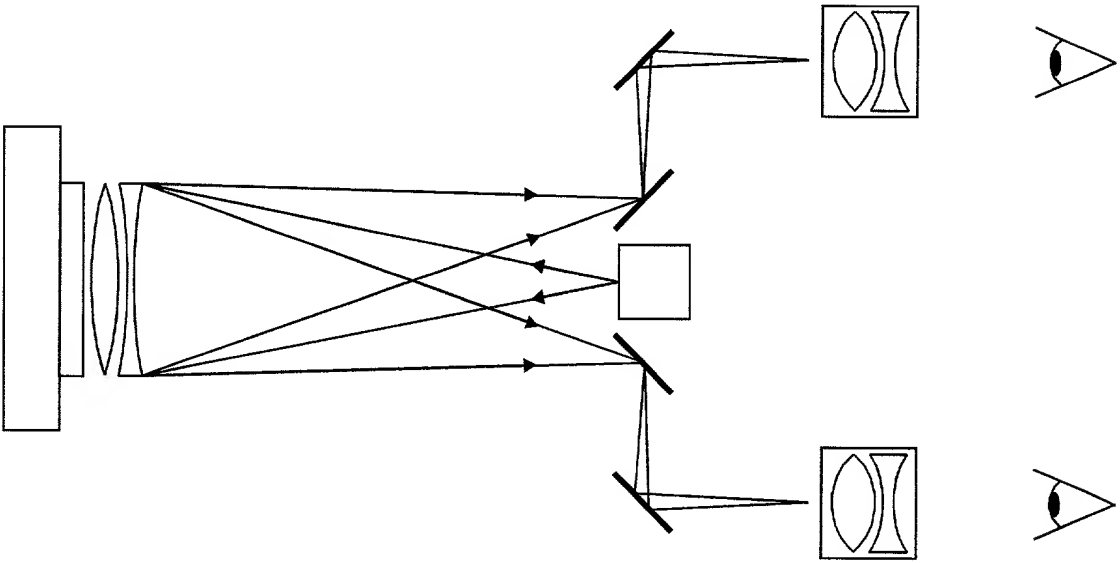


Fig. 20

# Single stage hybrid lens system

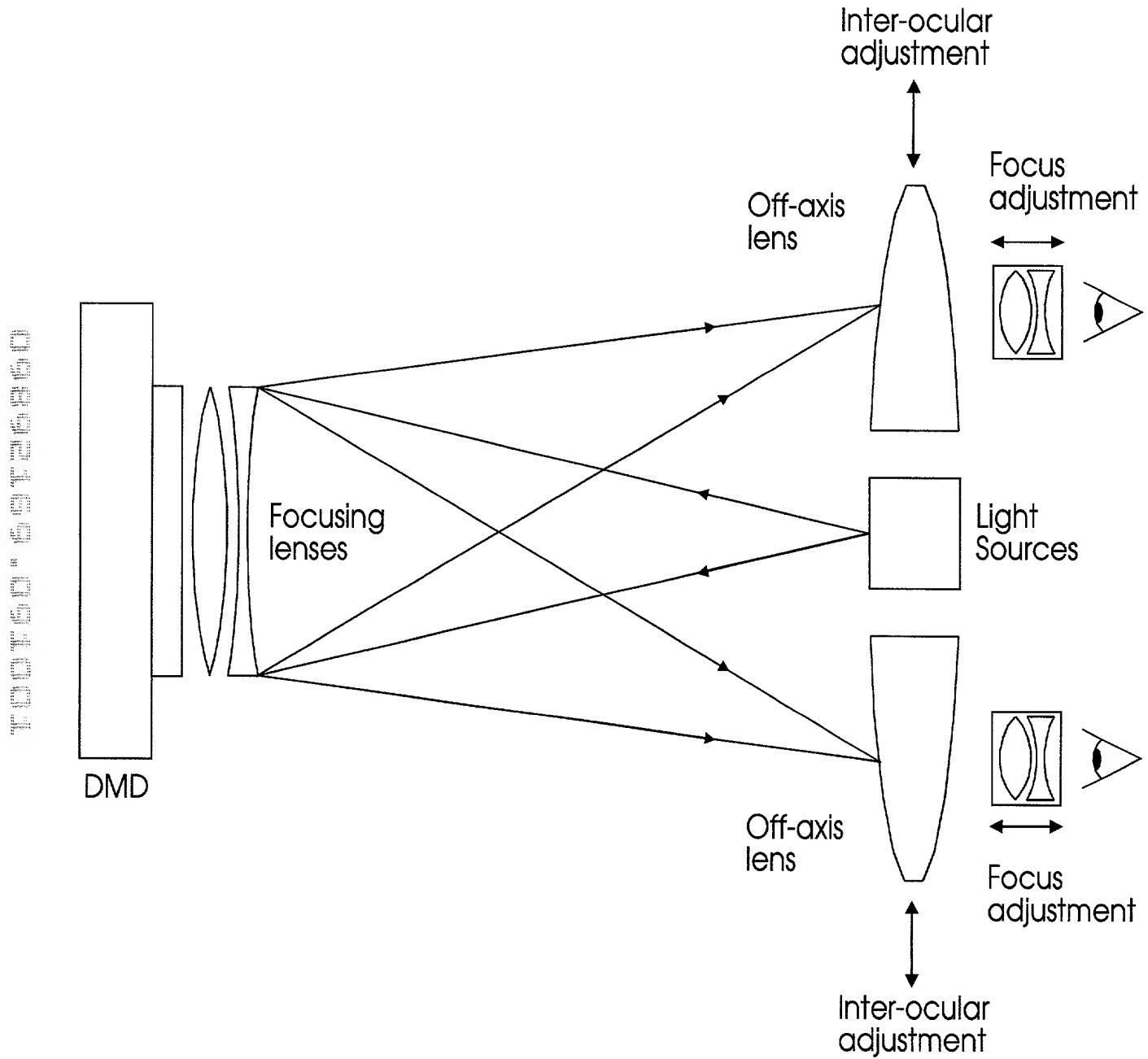


Fig. 21

## 2 stage hybrid lens system (preferred embodiment)

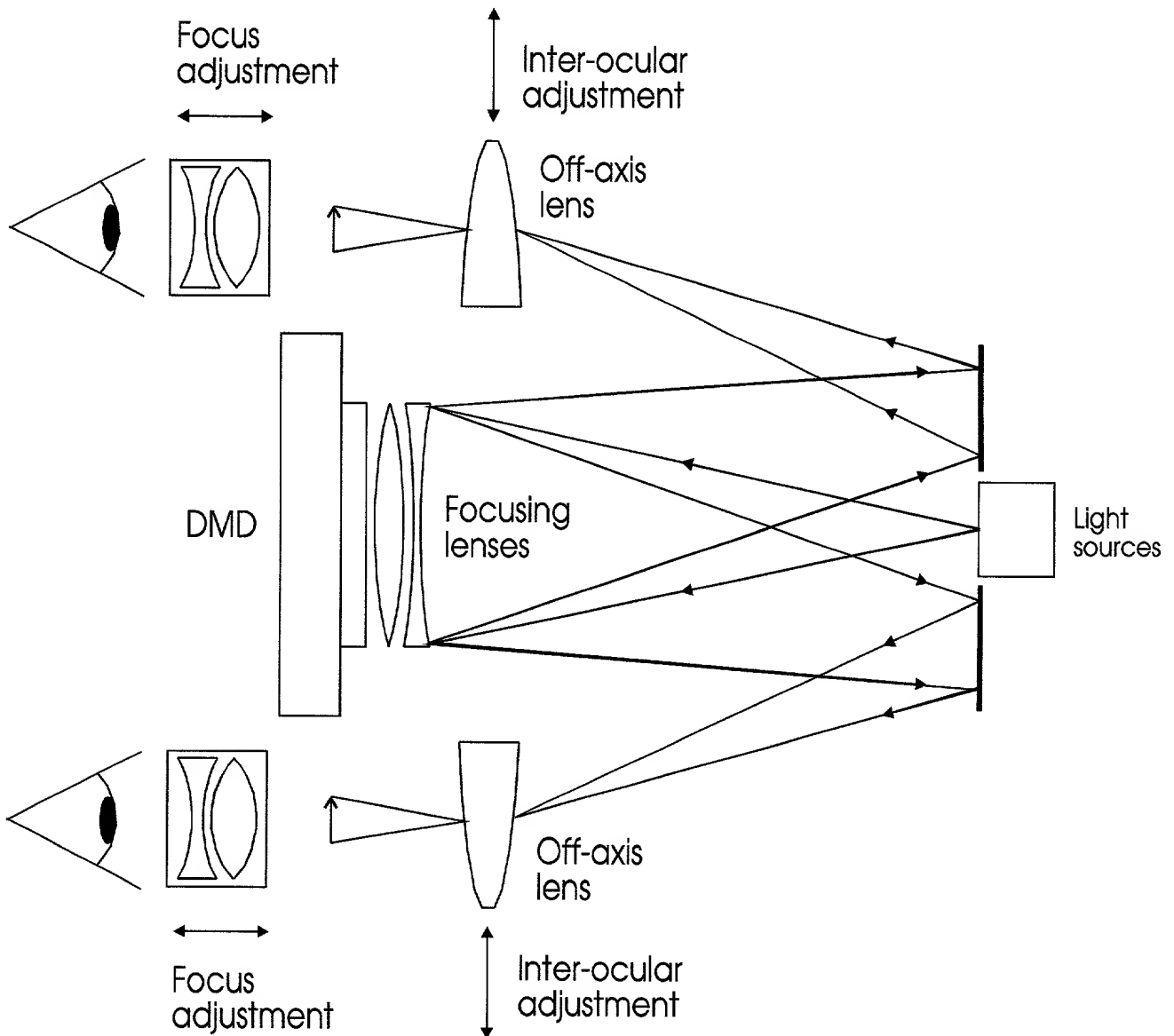


Fig. 22

# Lens HMD enhancements

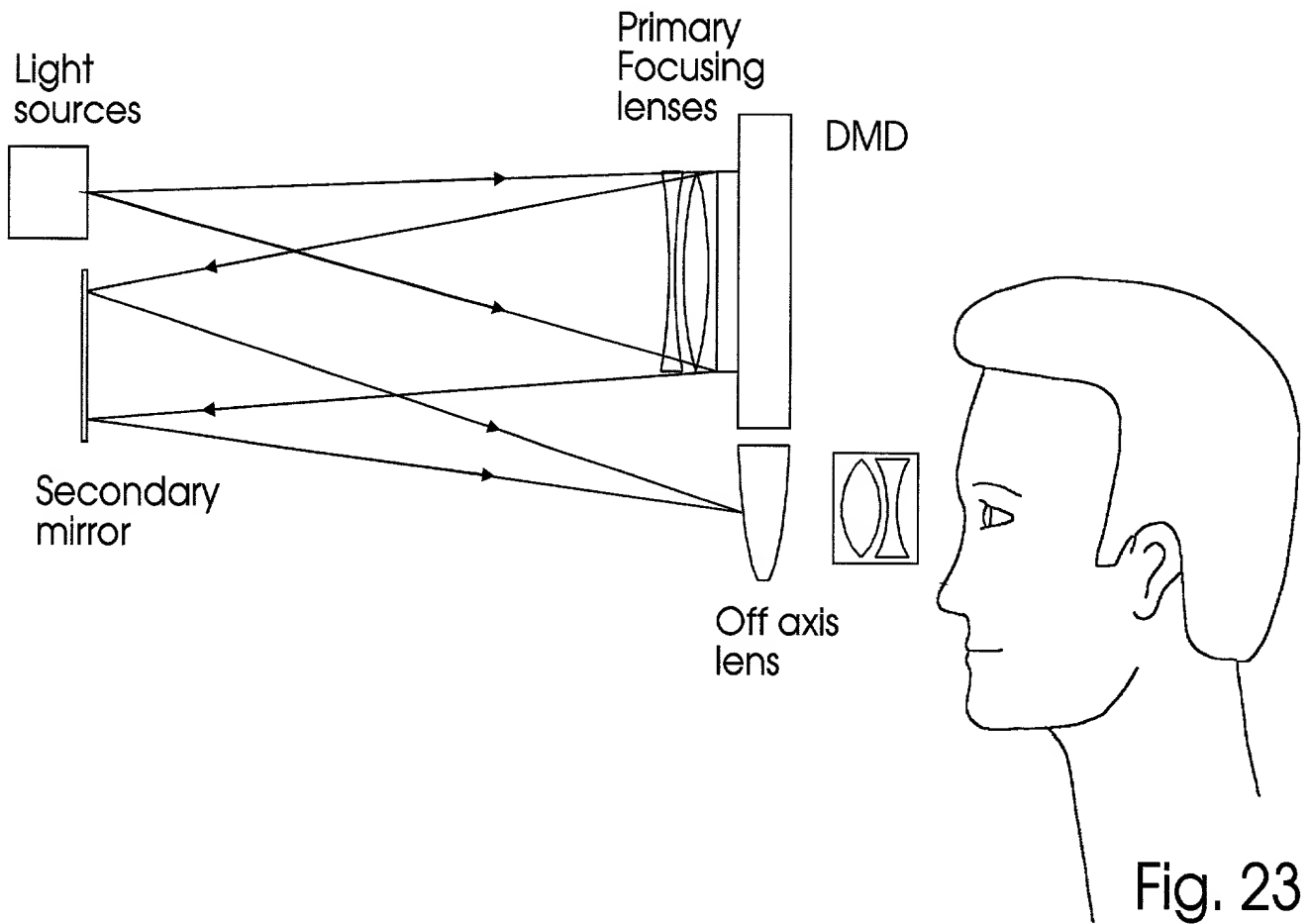


Fig. 23

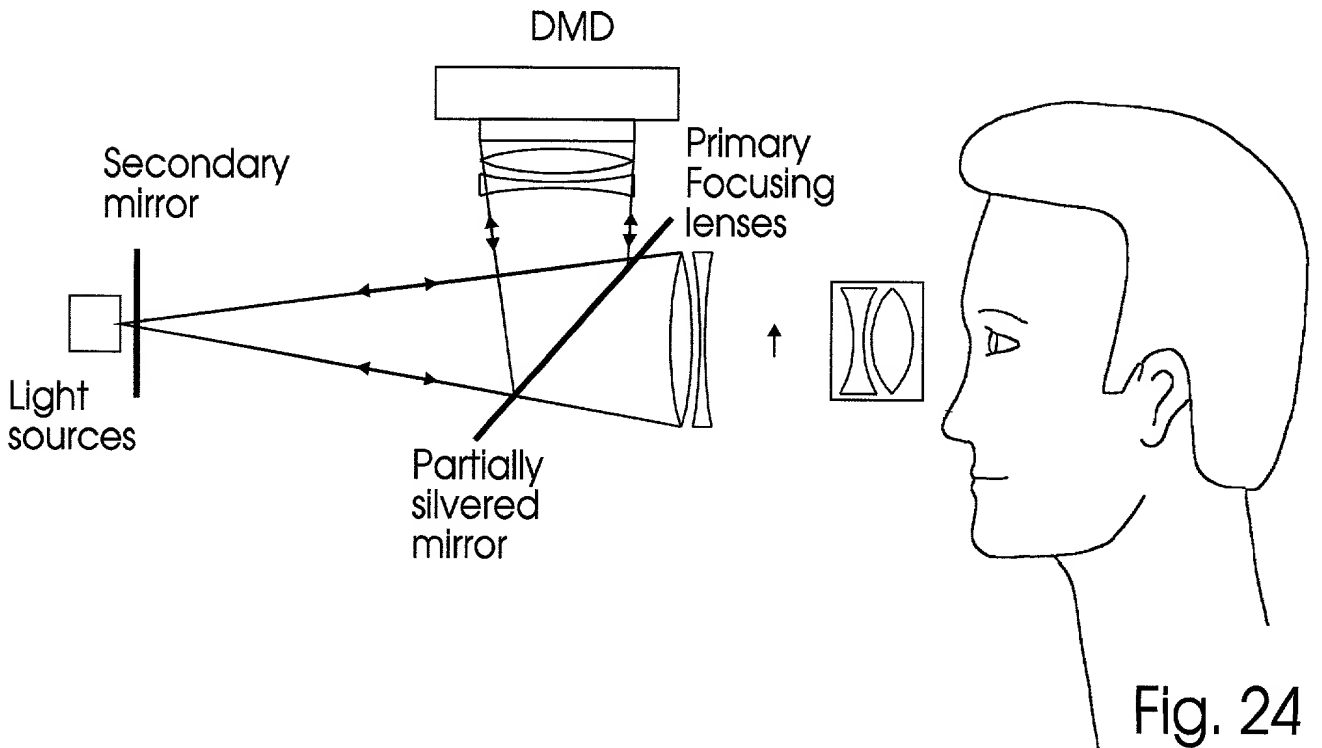


Fig. 24

# Light sources

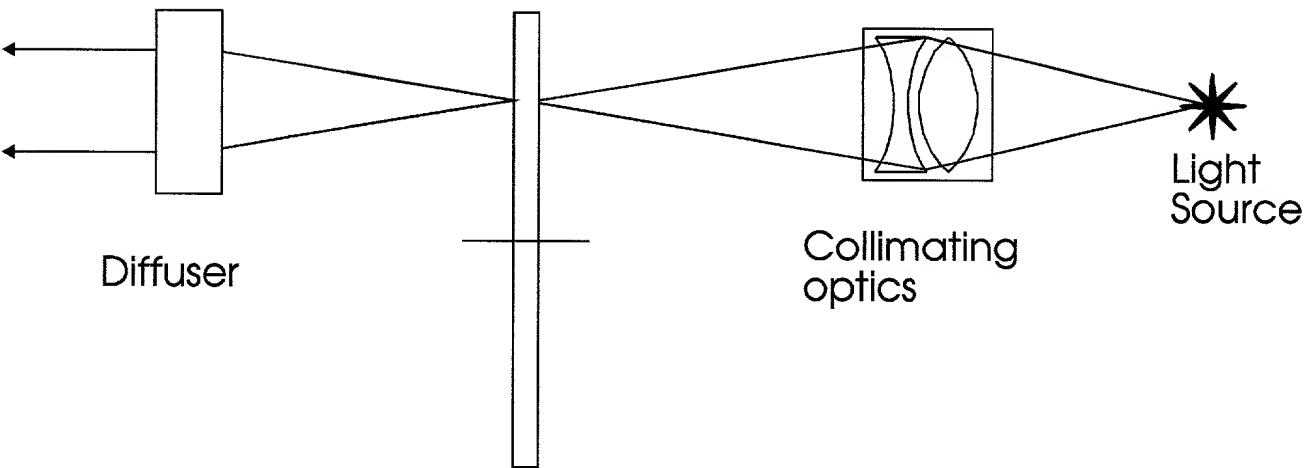
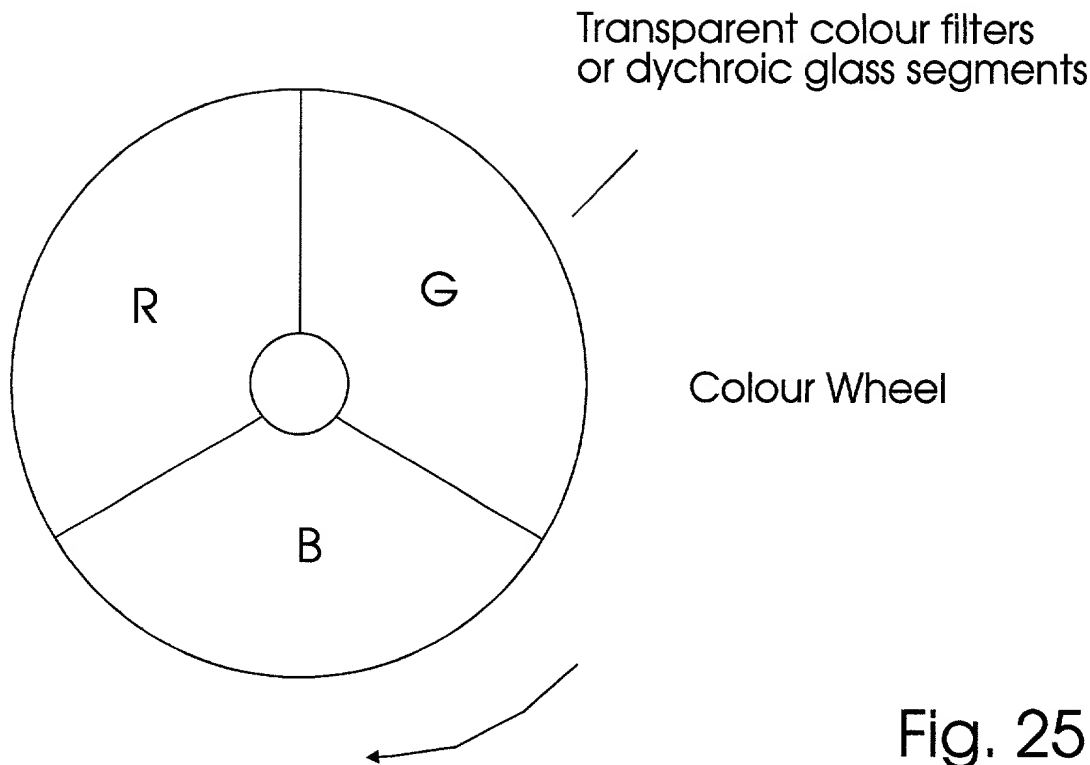


Fig. 26

# Light sources

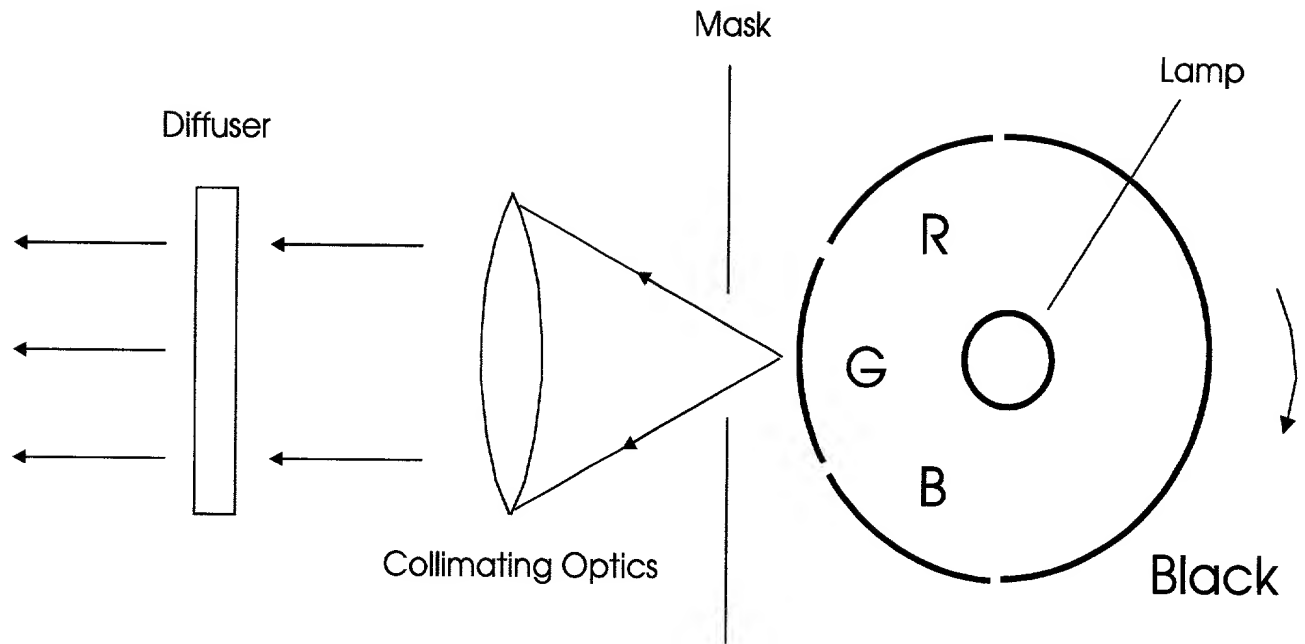


Fig. 27

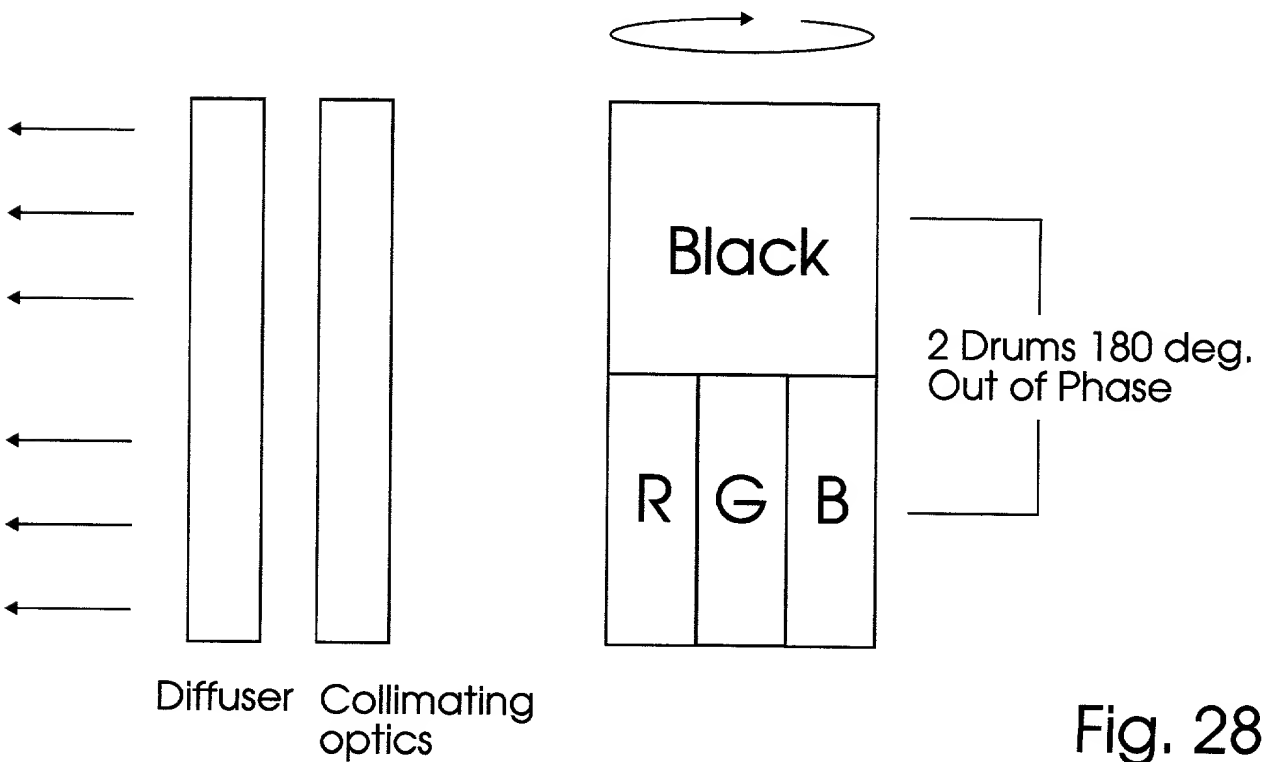
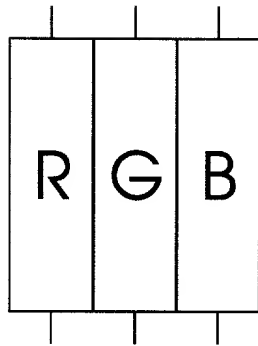
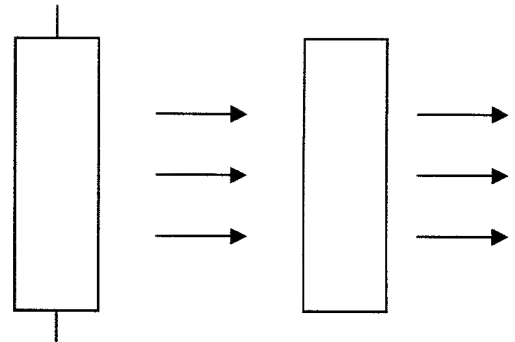


Fig. 28

# Light sources



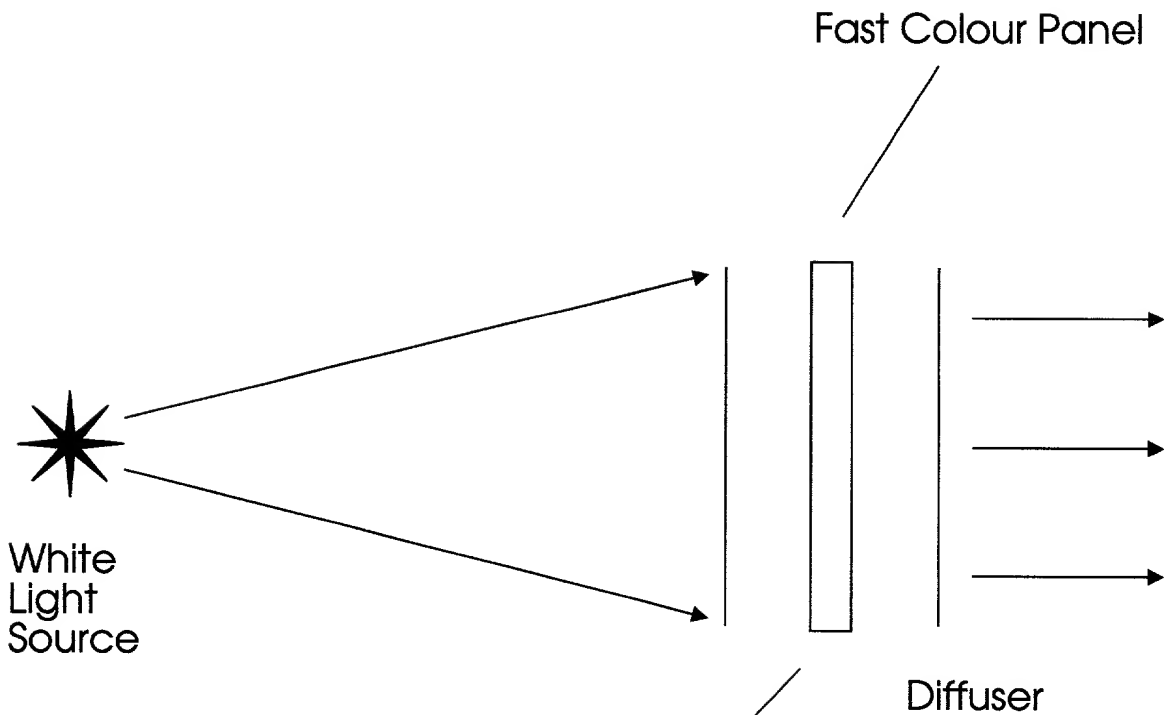
Light sources



Light sources

Diffuser

Fig. 29



Fresnel Lens

Fig. 30

# Light sources

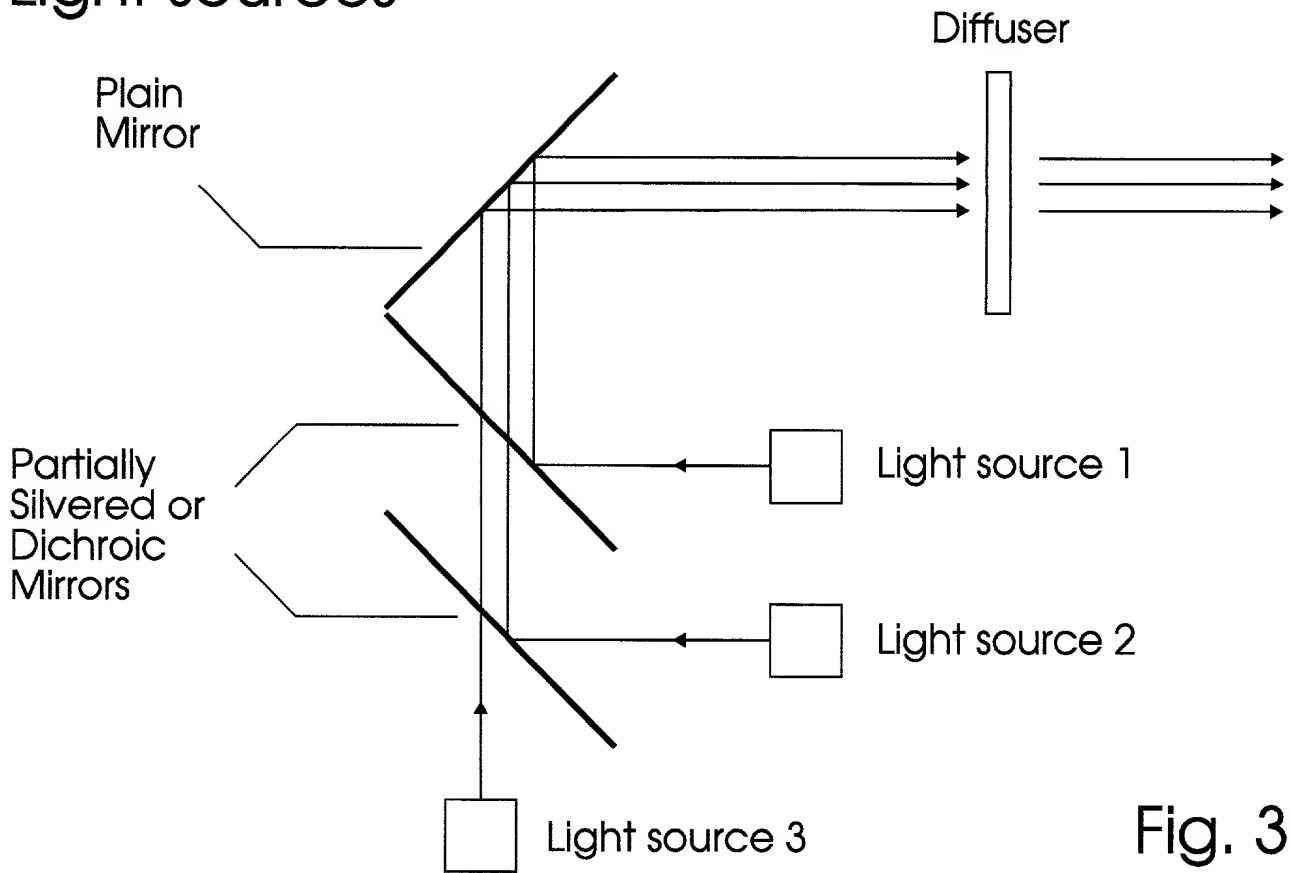


Fig. 31

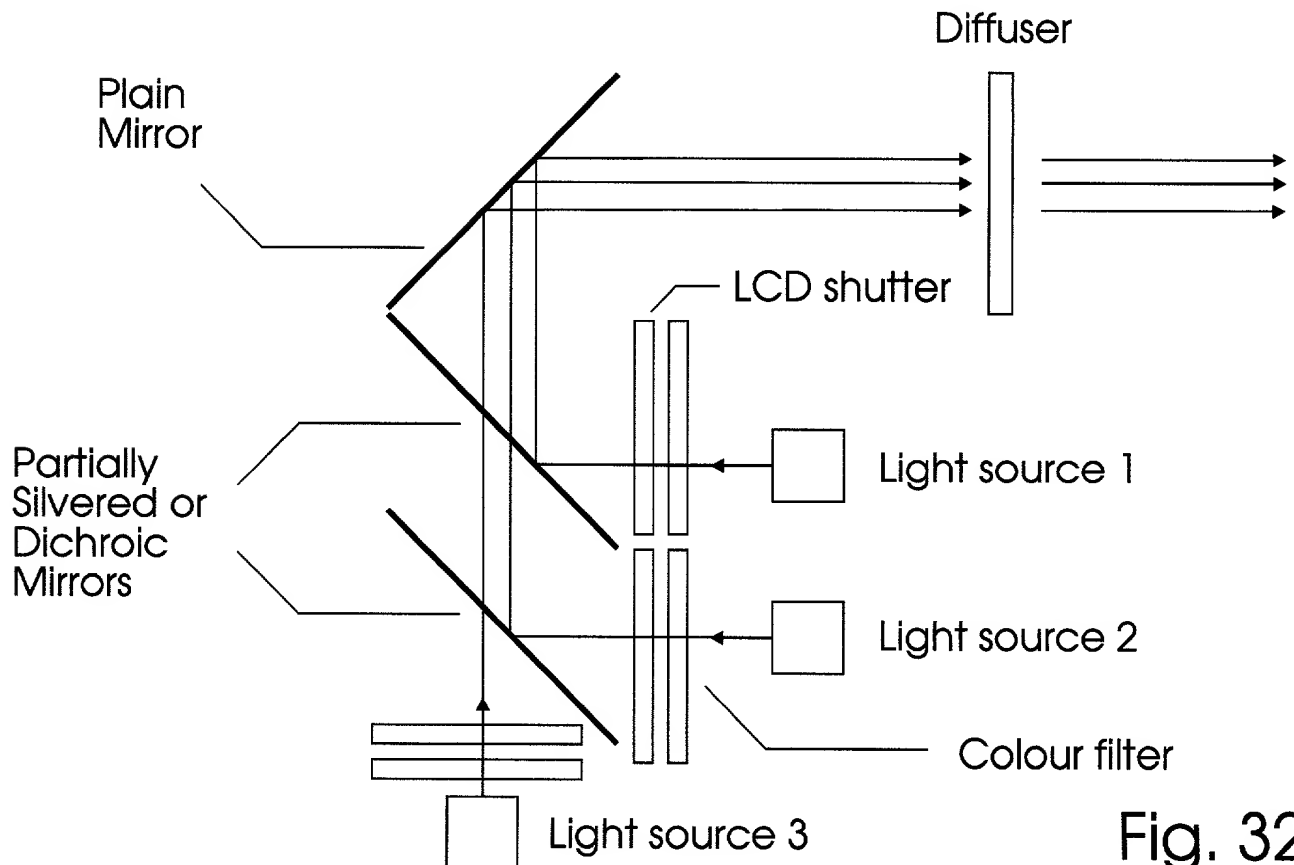
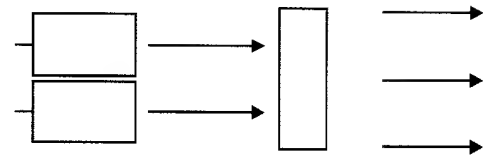
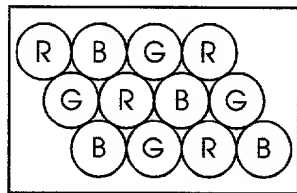


Fig. 32



# Light Sources

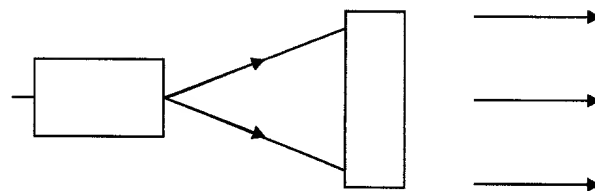
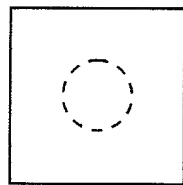
## LED Array-1 (Monochrome LEDs)



LED array      Diffuser

Fig. 33

## LED Array - 2 (Full Spectrum LEDs)



Full spectrum  
LED

Diffuser

Fig. 34

# Optical enhancements

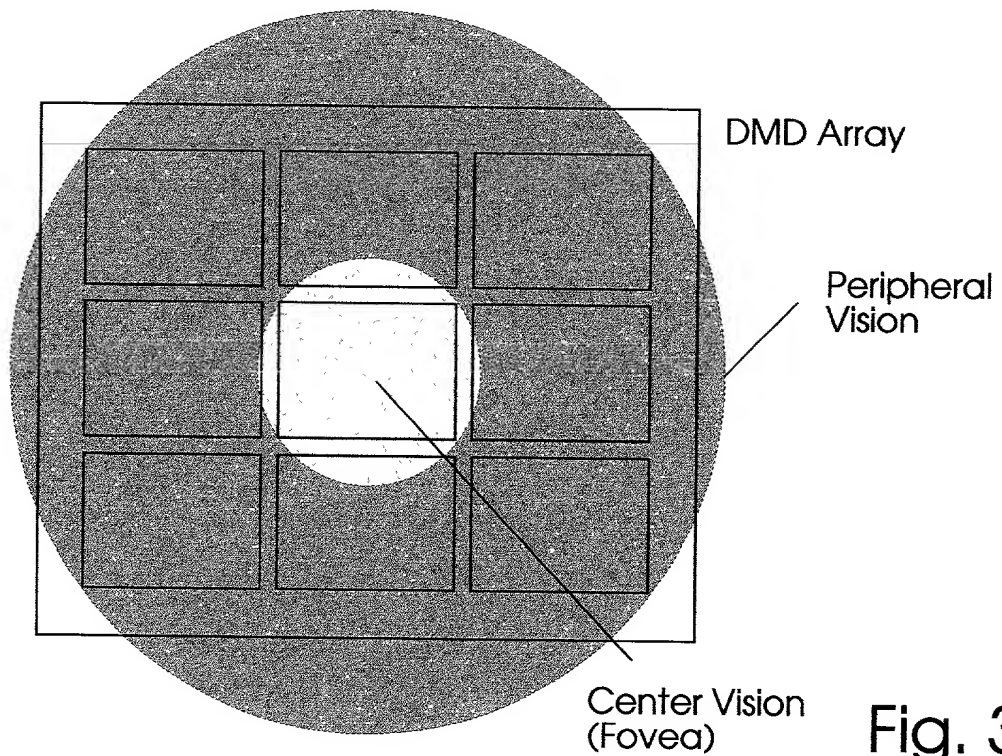


Fig. 35

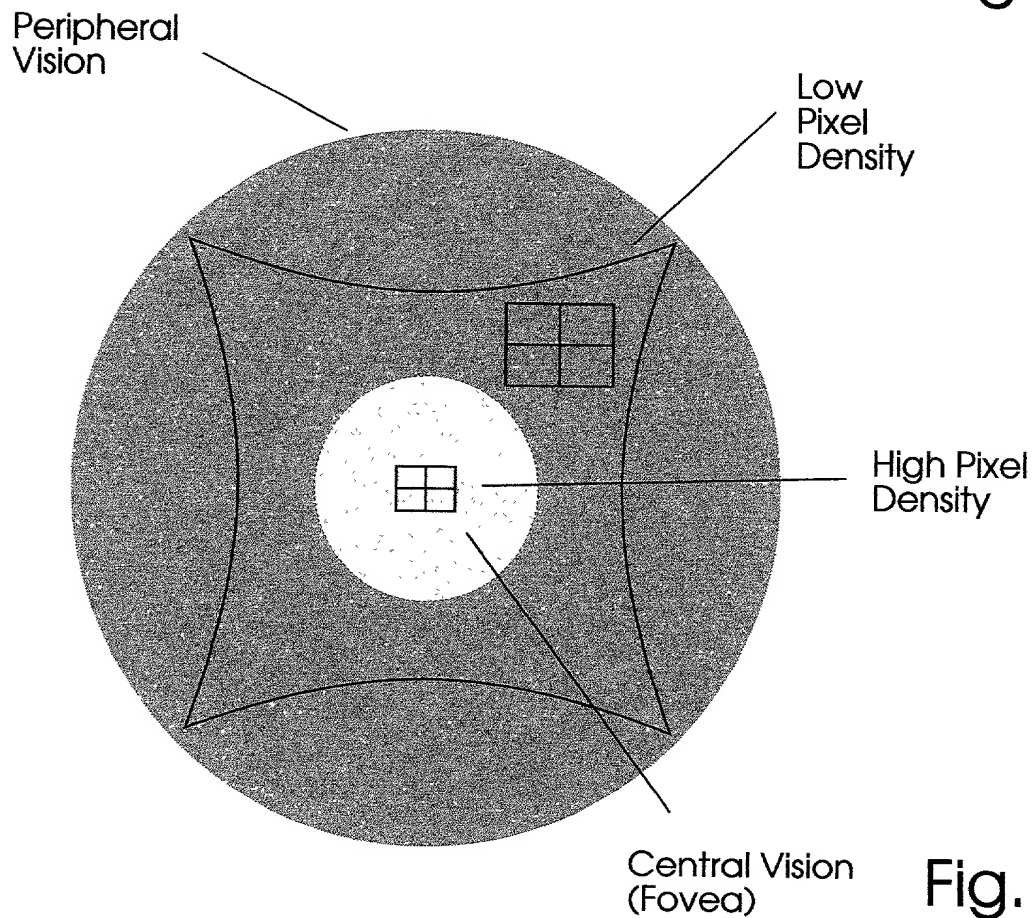


Fig. 36

# Colour space comparison

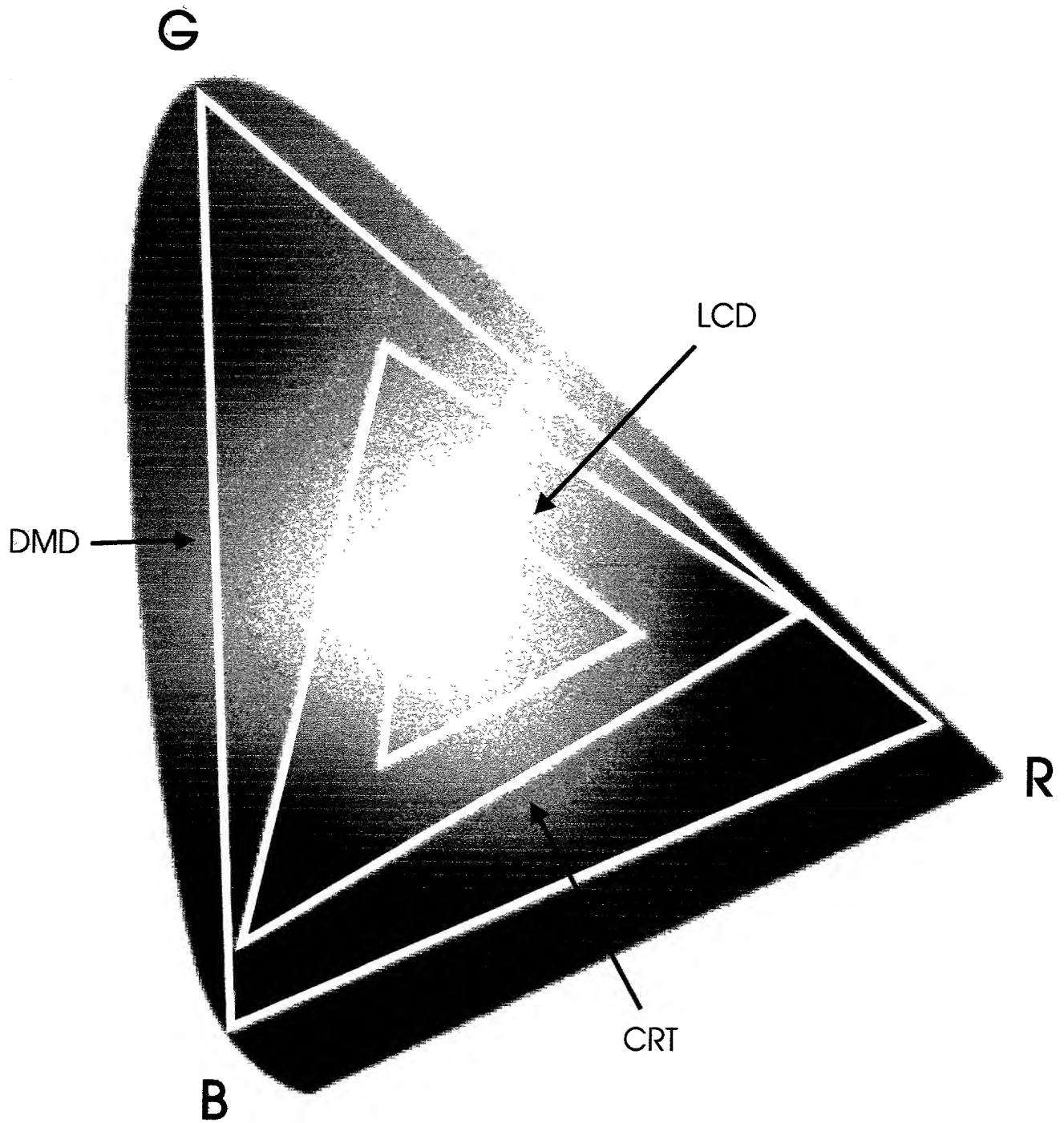


Fig. 37